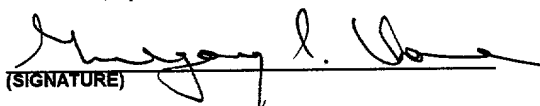


FORM PTO-1390 U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTORNEY'S DOCKET NO. PHD 98,097										
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371		U.S. Application No. (if known, see 37 CFR 1.5) 09/530253										
INTERNATIONAL APPLICATION NO. PCT/EP99/06107	INTERNATIONAL FILING DATE AUGUST 19, 1999	PRIORITY DATE CLAIMED AUGUST 27, 1998										
TITLE OF INVENTION ARRANGEMENT AND METHOD FOR LOCATING DATA CARRIERS												
APPLICANT(S) FOR DO/EO/US HENNING MAAB, THOMAS FALCK												
Applicant(s) herewith submit to the United States Designated/Elected Office (DO/EO/US) the following items and other information:												
<p>1. <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 U.S.C. 371.</p> <p>2. <input type="checkbox"/> This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371.</p> <p>3. <input type="checkbox"/> This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).</p> <p>4. <input type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.</p> <p>5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371 (c)(2))</p> <p>a. <input checked="" type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau).</p> <p>b. <input type="checkbox"/> has been transmitted by the International Bureau.</p> <p>c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US).</p> <p>6. <input type="checkbox"/> A translation of the International Application into English (35 U.S.C. 371(c)(2))</p> <p>7. <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))</p> <p>a. <input checked="" type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau).</p> <p>b. <input type="checkbox"/> have been transmitted by the International Bureau.</p> <p>c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired.</p> <p>d. <input type="checkbox"/> have not been made and will not be made.</p> <p>8. <input type="checkbox"/> A translation of the amendment to the claims under PCT Article 19 (35 U.S.C. 371 (c)(3)).</p> <p>9. <input checked="" type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).</p> <p>10. <input type="checkbox"/> A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).</p> <p>Items 11. to 16. below concern document(s) or information included:</p> <p>11. <input checked="" type="checkbox"/> An Information Disclosure Statement under 37 C.F.R. 1.97 and 1.98.</p> <p>12. <input checked="" type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 C.F.R. 3.28 and 3.31 is included.</p> <p>13. <input checked="" type="checkbox"/> A FIRST preliminary amendment. <input type="checkbox"/> A SECOND OR SUBSEQUENT preliminary amendment.</p> <p>14. <input type="checkbox"/> A substitute specification.</p> <p>15. <input checked="" type="checkbox"/> A change of power of attorney and/or address letter.</p> <p>16. <input checked="" type="checkbox"/> Other items or information: Application as published (WO 00/13035) Related Cases/Technology Report</p>												
<table border="1"> <tr> <th colspan="2">CERTIFICATE OF EXPRESS MAILING</th> </tr> <tr> <td>Express Mail Mailing Label No.</td> <td>EL 472 129 285</td> </tr> <tr> <td>Date of Deposit</td> <td>04/26/00</td> </tr> <tr> <td colspan="2">I hereby certify that this paper and/or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. 1.10 on the date indicated above and is addressed to the Commissioner of Patents and Trademarks, Washington D.C. 20231</td> </tr> <tr> <td>G. LAMPRECHT Typed Name</td> <td><i>G. Lamprecht</i> Signature</td> </tr> </table>			CERTIFICATE OF EXPRESS MAILING		Express Mail Mailing Label No.	EL 472 129 285	Date of Deposit	04/26/00	I hereby certify that this paper and/or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. 1.10 on the date indicated above and is addressed to the Commissioner of Patents and Trademarks, Washington D.C. 20231		G. LAMPRECHT Typed Name	<i>G. Lamprecht</i> Signature
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Express Mail Mailing Label No.	EL 472 129 285											
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G. LAMPRECHT Typed Name	<i>G. Lamprecht</i> Signature											

U.S. APPLICATION NO. (If known, see 37 C.F.R. 1.5) 09/530253		INTERNATIONAL APPLICATION NO. PCT/EP99/06107		ATTORNEY'S DOCKET NUMBER PHD 98097	
17 [] The following fees are submitted: BASIC NATIONAL FEE (37 C.F.R. 1.492(A)(1)-(5)):				CALCULATIONS (PTO USE ONLY)	
Search Report has been prepared by the EPO or JPO \$940.00 International preliminary-examination fee paid to USPTO (37 C.F.R. 1.482) \$720.00 No international preliminary examination fee paid to USPTO (37 C.F.R. 1.482) but international search fee paid to USPTO (37 C.F.R. 1.445(a)(2)) \$760.00 Neither international preliminary examination fee (37 C.F.R. 1.482) nor international search fee (37 C.F.R. 1.445(a)(2)) paid to USPTO \$970.00 International preliminary examination fee paid to USPTO (37 C.F.R. 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4) \$ 96.00					
ENTER APPROPRIATE BASIC FEE AMOUNT =				\$970.00	
Surcharge of \$130.00 for furnishing the oath or declaration later than [] 20 [] 30 months from the earliest claimed priority date (37 C.F.R. 1.492(e)).				\$	
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total Claims	5 - 20 =		X \$ 18.00	\$	
Independent claims	2 - 3 =		X \$ 78.00	\$	
MULTIPLE DEPENDENT CLAIMS (if applicable)			+ \$260.00	\$	
TOTAL OF ABOVE CALCULATIONS =				\$970.00	
Reductions by 1/2 for filing by small entity, if applicable. Verified Small Entity Statement must also be filed (Note 37 C.F.R. 1.9, 1.27, 1.28)				\$	
SUBTOTAL =				\$970.00	
Processing fee of \$130.00 for furnishing the English translation later than [] 20 [] 30 months from the earliest claimed priority date (37 C.F.R. 1.492(f)).				+	
TOTAL NATIONAL FEE =				\$	
Fee for recording the enclosed assignment (37 C.F.R. 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 C.F.R. 3.28, 3.31). \$40.00 per property				+	
TOTAL FEES ENCLOSED =				\$1,010.00	
				Amount to be refunded	\$
				charged	\$
a. [] A check in the amount \$_____ to cover the above fees is enclosed. b. [X] Please charge my Deposit Account No. <u>14,1270</u> in the amount of <u>\$1,010.00</u> to cover the above fees. A duplicate copy of this sheet is enclosed. c. [X] The Commissioner is hereby authorized to charge any additional fee, with the exception of the Base Issue Fee, which may be required, or credit any overpayment to Deposit Account No. <u>14,1270</u> . A duplicate copy of this sheet is enclosed.					
NOTE: Where an appropriate time limit under 37 C.F.R. 1.494 or 1.495 has not been met, a petition to revive (37 C.F.R. 1.137(a) or (b)) must be filed and granted to restore the application to pending status.					
SEND ALL CORRESPONDENCE TO:			 (SIGNATURE)		
Corporate Patent Counsel Philips Electronics North America Corporation 580 White Plains Road Tarrytown, NY 10591			Gregory L. Thorne (NAME)		
DATE OF MAILING:			39,398 (REGISTRATION NUMBER)		

09/530253

526 Rec'd PCT/PTO 26 APR 2000

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Atty. Docket

HENNING MAAB ET AL

PHD 98,097

Int'l Application No.: PCT/EP99/06107

Filed: CONCURRENTLY

Title: ARRANGEMENT AND METHOD FOR LOCATING DATA CARRIERS

Commissioner of Patents and Trademarks
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Sir:

Prior to calculation of the filing fee and examination,
please amend the above-identified application as follows:

IN THE SPECIFICATION

Page 1, above line 1, insert the heading:

--BACKGROUND OF THE INVENTION--;

above line 13, insert the heading:

--SUMMARY OF THE INVENTION--;

Page 3, above line 5, insert the heading:

--BRIEF DESCRIPTION OF THE DRAWINGS--;

line 12, insert the heading:

--DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS--.

IN THE CLAIMS

Please amend Claim 5 and add new Claim 6 as follows:

Claim 5, line 1, delete "and 4".

6. A method as claimed in Claim 4, characterized in that applications interrogate the information unit for the location of a data carrier.

IN THE ABSTRACT

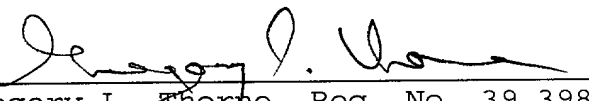
Enter the "Abstract of the Disclosure" on the separate sheet attached.

REMARKS

The specification and claims have been amended to add headings in accordance with MPEP Section 601, and to delete multiple dependencies.

The above amendments are submitted to place this application in proper U.S. format. Entry of the amendment and an early action on the merits are solicited.

Respectfully submitted,

By 
Gregory L. Thorne, Reg. No. 39,398
Attorney
(914) 333-9665

ABSTRACT OF THE DISCLOSURE

Mobile objects for locating, e.g., persons or inanimate objects, are provided with a data carrier that determines the absolute position using a position-determining system such as e.g., GPS. To optimize the exchanging of data between an application that requires the location of the data carrier and the object itself, the absolute position of the objects is transmitted to an information unit when the data carrier is initialized. The information unit translates the coordinates using a digitized map or a plan divided into areas so that the object can be allocated to a corresponding area. This data is stored in the information unit. The boundaries of the area in which the object is located are transmitted to the data carrier and if the object changes its position, the data carrier itself can determine whether the object has left an area. If the current position of the data carrier no longer matches the area information, the data carrier reports its position to the information unit again. If an application requests the position of a data carrier, the information unit transmits the data carrier area information that has been stored to the application.

Arrangement and method for locating data carriers.

The invention relates to an arrangement for and method of locating objects provided with data carriers.

Such methods enable persons or devices to be located in respective areas. For this purpose, the objects have a portable data carrier which receives position data from a positioning system, for example the Global Positioning System (GPS).

US 5,490,079 describes a system for automated toll collection which utilizes GPS. The system operates with a tag which includes a GPS sensor. When the tag determines that it is situated in such an area, it sends a signal to a receiver. The time of staying in the toll area is stored in the tag. When the toll fee which is due has been paid at an authorized point of payment the amount of toll incurred is cleared. In the case of non-payment of this toll the tag is deactivated after a given time. The tag inter alia includes a memory which stores the toll areas.

In order to enable a universal use of such a data carrier the size of the data carrier should be small in relation to the object. On the other hand, such mobile data carriers require batteries which must be small but should have a long life.

Often, the absolute position of an object or person is not relevant and for many uses it is sufficient when more general area information or the relative position is available.

It is an object of the invention to provide an arrangement and a method by which the exchange of data between data carrier and information unit.

This object is achieved by means of the arrangement defined in Claim 1 and by means of the method defined in Claim 3.

The locating system essentially consists of three components: a position-determining system, an object provided with a data carrier and an information unit.

Upon its initialization the data carrier transmits its absolute coordinates, which represent its absolute position, to the information unit. The information unit stores corresponding areas in electronic maps. The information unit translates the respective absolute coordinates of the data carrier into the relative area data. Moreover, the data of the area in which the data carrier is currently located is stored. The information unit transmits the

boundaries of the area in which the object is located back to the data carrier, where this data is then stored.

Since the object can move within its area, in other areas and also outside the area defined by area boundaries, the data carrier requests its absolute position in definable distances from the position-determining system. By a comparison of this absolute position with the boundaries stored for the area it is determined whether the data carrier is still within the respective stored area. As long as this comparison reveals that the object with the data carrier is still located in the respective area there is no communication between the data carrier and the information unit. Once the data carrier detects that its absolute coordinates lie outside the area stored in the carrier it will transmit its new position to the information unit.

An advantage of this method is that the relative position of the object is continually available in the information unit for any application for which the location of the object is of interest.

This reduces the communication between the data carrier and the information unit to a minimum.

Since the information unit stores, for example, toll areas or application-specific areas the data carrier need not be as intricate and expensive. The stored areas can be changed any time without modification of the data carrier.

How many time the data carrier requests its absolute position from the positioning apparatus depends particularly on the required accuracy but also on the speed with which the object travels.

Applications, for example locating systems which are interested in the location of the object but for which the absolute position is not crucial can at any time query the information unit for the instantaneous area where the data carrier is located via existing infrastructural networks.

Situations may arise in which the data carrier is briefly out of contact with the information unit, for example when infrared or radio networks with incomplete coverage are used. The failing contact between the information unit and the object with the data carrier is then not a problem because the information unit stores the area or, in general terms, the relative position of the object.

The relevant application need not immediately interrogate the individual data carriers for each query. This simplifies the communication means. In addition, a plurality of applications can be provided with area information of the objects without each individual application having to communicate with the objects.

As a result of this reduction of the communication means the batteries and, consequently, the logic means necessary in the data carrier can be small. On the one hand, this extends the operating period of such a data carrier and, on the other hand, it extends its fields of use.

Further advantageous embodiments of the invention will be apparent from the description and the accompanying drawings. In the drawings:

Figure 1 shows a block diagram of an arrangement in accordance with the invention,

Figure 2 shows the structure of a data carrier in conjunction with the position-determining system and the information unit, and

Figure 3 shows a time chart for the components involved.

Figure 1 shows the structure of an arrangement in accordance with the invention. The information unit 5 monitors for example four areas 1, 2, 3 and 4 in which objects to be monitored and each having a respective data carrier 11, 12, 13 or 14 is located. The position-determining system 6 transmits the absolute position data to the data carriers 11 to 14. Said absolute position data is transmitted to the information unit 5 in dependence on the mode of the data carrier. In turn-on mode of the data carrier the absolute position data is transmitted directly to the information unit. The information unit 5 transmits boundaries of the respective area in which the data carriers 11-14 are currently located back to said carriers. Apart from this, the absolute position data is only transmitted to the information unit 5 when these lie outside the stored limits of the current instantaneous area. Applications 7 for which the location of the data carriers 11 to 14 is of interest receive the current area information from a data bank from the information unit 5. For this purpose the data carrier need not be contacted. If applications need to respond under given conditions the information unit 5 transmits a message to the application when the respective condition occurs.

Figure 2 shows the data carrier 11, which includes a position sensor 20, a transmitter 21, a receiver 22, a memory 23 and a comparator 24. By means of the position sensor 20 the data carrier 11 receives its absolute position data, for example its absolute coordinates in a space or the geographical position with a length and width specification, from the position-determining system 6. For the position-determining system 6 the Global Positioning System (GPS) can be used. It is likewise possible to use local position-determining systems operating with infrared or radio waves inside buildings.

The object to be monitored is connected to the data carrier 11. Upon initialization, for example upon turn-on, the data carrier 11 receives the absolute position data from the position -determining system 6 via the position sensor 20. The position data received upon initialization are transmitted directly to the information unit 5. The transmitter 21 provided in the data carrier 11 is used for this purpose. It is also possible to transmit additionally included information, such as time and identification, to the information unit 5. The information unit 5 stores the respective areas in the form of electronic maps. The information unit 5 receives the absolute position data of the location of the object transmitted by the data carrier 11 during the initialization process. In the information unit 5 said absolute position data is assigned to the respective area in which the with the data carrier 11 is now located. The information in which area the object with the data carrier is now located is stored in a data bank of the information unit 5. The boundaries of the area in which the object is located are transmitted back to the data carrier 11. The data carrier 11 receives these boundaries by means of the receiver 22. The boundaries may be transmitted in the form of data of a polygon. The data carrier 11 stores these boundaries in the memory 23.

Depending on the required accuracy the position-determining system 6 is interrogated for the current absolute position by the data carrier 11 at appropriate intervals. Each new position is compared with the boundaries stored in the memory 23 by the comparator 24. There is no communication between the data carrier 11 and the information unit 5 as long as the object with the data carrier 11 is located in the area whose boundaries are stored in the data carrier. The data carrier transmits its absolute position to the information unit 5 only when it is located outside the area and this has been detected by comparison with the stored boundaries. The information unit then determines the data corresponding to said position data with the aid of the electronic maps stored in it, stores the area which the object has entered, and transmits the new boundaries of the area to the data carrier 11.

This results in an optimization of the communication between the data carrier 11 and the information unit 5 during the time that the data carrier 11 is located within an area. Upon a request to the information unit an application that is interested in the instantaneous position of the data carrier receives the position data of the respective area stored for the relevant data carrier 11. Thus, it is not necessary for the data carrier 11 to be constantly within the receiving range of all possible applications.

An information unit thus serves a multitude of data carriers 11. Different applications can simultaneously access the information unit 5, as a result of which each application need not directly contact the respective data carriers.

Figure 3 shows diagrammatically the time chart for the communication between the elements of the locating system. The process for the data carrier is represented at A, for the information unit at B, for the position-determining system at C, and for an application at D. A step (31) represents the initialization of the data carrier. Subsequently, the data carrier receives its absolute position data from the position-determining system C. The data carrier then transmits this data to the information unit (34). After having received the position data from the data carrier the information unit allocates the absolute position of the data carrier to an area (35) with the aid of the electronic maps stored therein. This area allocation is stored in a data bank of the information unit (36). With the aid of the area thus determined the boundary data for the relevant area is derived. Subsequently, the information unit transmits this boundary data to the data carrier (38). The data carrier receives the area boundary data and stores this data (39). The data carrier receives its current absolute position from the position-determining system. This current absolute position of the data carrier is compared with the boundary data (41). When the object with the data carrier has moved out of the stored area the current absolute position is no longer within the area boundary data. The data carrier then transmits its new absolute position to the information unit (42). In this unit the same steps are performed as after the first transmission of the absolute position (35, 36, 37, 38). If the position is within the area boundary data the new absolute position is not transmitted to the information unit. During this time an application D may have inquired about a data carrier (43). The information unit selects the respective data carrier from the data bank (44) and transmits the instantaneous area where the data carrier is located to the application (45).

There is a wide variety of examples of applications which may be interested in the locations of the individual data carriers. Some of these examples will be outlined briefly. A possible application is a person locating system. All the persons are then given a data carrier and move inside a complex of buildings. When a person is to be traced the information unit can be interrogated, for example via a local computer network. Thus, for example the room or the building where the person is then located is detected.

Another conceivable application is referred to as a "moving map". A position sensor is installed onboard a vehicle. Via this sensor the absolute position of the vehicle is obtained and transmitted to an information unit via a transmission medium. Information

about the locations of individual vehicles can then be obtained from this information unit. Thus, hauling companies can locate vehicles in the entire area respective covered by an information unit.

- An extension is the combination of a plurality of information units. The data
- 5 banks of a plurality of information units are then controlled from a central point, as a result of which the relevant application needs to address only one point.

CLAIMS:

1. A locating system having a position-determining system and at least one data carrier including a position sensor, a transmitter and a receiver, characterized in that area information is stored in an information unit which is remote from the data carrier and can be transmitted to the data carrier and said data carrier transmits its position to the information unit only in the case of initialization and a change of area.

2. A locating system as claimed in Claim 1, characterized in that the data carrier has a receiver for receiving in particular area boundaries, and a memory for storing area boundaries and absolute position data, and a comparator for said data, and the information unit compares the position data with the area information and transmits the boundaries of the current area to the data carrier.

3. A method of locating an object provided with a data carrier, the data carrier receiving position data from a position-determining system, characterized in that the data carrier transmits position data to an information unit, which position data is allocated to an area in the information unit, and the boundaries of the current area are transmitted to the data carrier and upon each movement of the data carrier the current position is compared with the boundaries of the current area and the new position data being transmitted to the information unit only in the case of a negative result of the comparison of the area boundaries transmitted by the information unit with the current position of the mobile data carrier.

4. A method as claimed in Claim 3, characterized in that the position data transmitted by the mobile data carrier is translated into area data in the information unit and the current area in which the data carrier is located is stored in the information unit.

5. A method as claimed in Claims 3 and 4, characterized in that applications interrogate the information unit for the location of a data carrier.

1/2

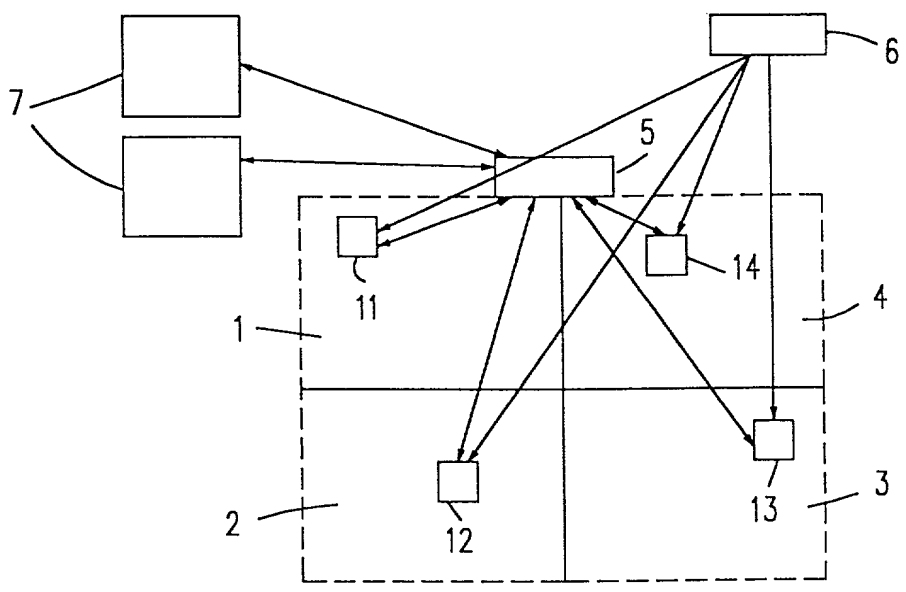


FIG.1

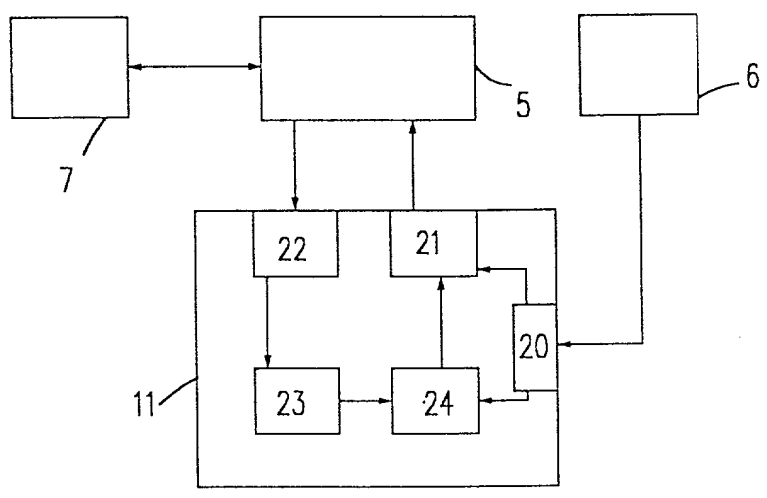


FIG.2

2/2

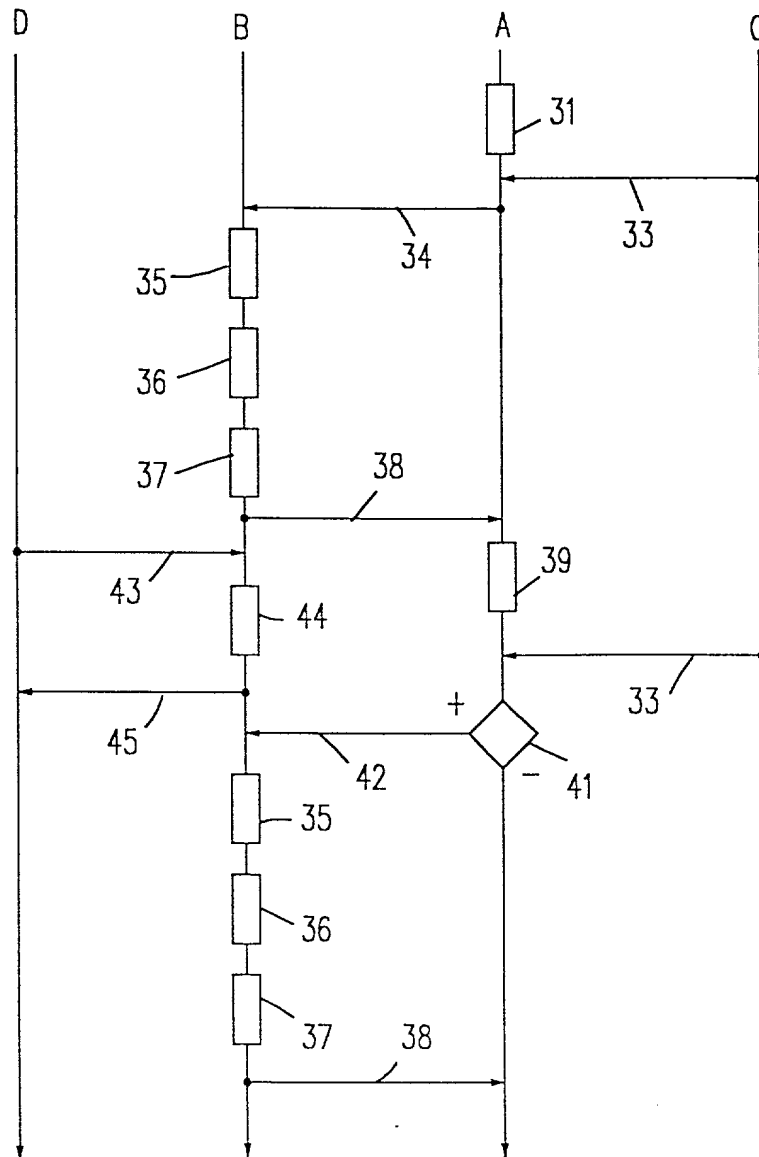


FIG.3

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

the specification of which (check only one item below):

☐ is attached hereto.

☐ was filed as United States application

Serial No.

on

and was amended

on

☒ was filed as PCT international application

Number PCT/EP99/06107

on 19 August 1999 (19.08.99)

and was amended under PCT Article 19

on (if applicable)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, § 1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, § 119 of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed:

PRIOR FOREIGN/PCT APPLICATION(S) AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. 119:

COUNTRY	APPLICATION NUMBER	DATE OF FILING DAY, MONTH, YEAR	PRIORITY CLAIMED UNDER 35 USC 119
Germany	19838902.7	27 August 1998	YES

U.S. DEPARTMENT OF COMMERCE -Patent and Trademarks Office
(July 1994)



Combined Declaration For Patent Application and Power of Attorney (Continued) (Includes Reference to PCT International Applications)	Attorneys Docket Number PHD 98.097 US
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POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (List name and registration number)

Algy Tamoshunas Reg. No. <u>27,677</u> Jack E. Haken, Reg. No. <u>26,902</u>	Direct Telephone Calls to: (name and telephone number) (914)332-0222
---	--

201	FULL NAME OF INVENTOR	FAMILY NAME MAAB	FIRST GIVEN NAME Henning	SECONDE GIVEN NAME
	RESIDENCE & CITIZENSHIP	CITY Aachen	STATE OR FOREIGN COUNTRY Germany <i>DEX</i>	COUNTRY OF CITIZENSHIP Germany
	POST OFFICE ADDRESS	POST OFFICE ADDRESS Burghöhenweg 17	CITY 52080 Aachen	STATE & ZIP CODE/COUNTRY Germany
202	FULL NAME OF INVENTOR	FAMILY NAME FALCK	FIRST GIVEN NAME Thomas	SECONDE GIVEN NAME
	RESIDENCE & CITIZENSHIP	CITY Aachen	STATE OR FOREIGN COUNTRY Germany <i>DEX</i>	COUNTRY OF CITIZENSHIP Germany
	POST OFFICE ADDRESS	POST OFFICE ADDRESS Hauptstraße 10	CITY 52066 Aachen	STATE & ZIP CODE/COUNTRY Germany
203	FULL NAME OF INVENTOR	FAMILY NAME	FIRST GIVEN NAME	SECONDE GIVEN NAME
	RESIDENCE & CITIZENSHIP	CITY	STATE OR FOREIGN COUNTRY	COUNTRY OF CITIZENSHIP
	POST OFFICE ADDRESS	POST OFFICE ADDRESS	CITY	STATE & ZIP CODE/COUNTRY
204	FULL NAME OF INVENTOR	FAMILY NAME	FIRST GIVEN NAME	SECONDE GIVEN NAME
	RESIDENCE & CITIZENSHIP	CITY	STATE OR FOREIGN COUNTRY	COUNTRY OF CITIZENSHIP
	POST OFFICE ADDRESS	POST OFFICE ADDRESS	CITY	STATE & ZIP CODE/COUNTRY
205	FULL NAME OF INVENTOR	FAMILY NAME	FIRST GIVEN NAME	SECONDE GIVEN NAME
	RESIDENCE & CITIZENSHIP	CITY	STATE OR FOREIGN COUNTRY	COUNTRY OF CITIZENSHIP
	POST OFFICE ADDRESS	POST OFFICE ADDRESS	CITY	STATE & ZIP CODE/COUNTRY
206	FULL NAME OF INVENTOR	FAMILY NAME	FIRST GIVEN NAME	SECONDE GIVEN NAME
	RESIDENCE & CITIZENSHIP	CITY	STATE OR FOREIGN COUNTRY	COUNTRY OF CITIZENSHIP
	POST OFFICE ADDRESS	POST OFFICE ADDRESS	CITY	STATE & ZIP CODE/COUNTRY

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

SIGNATURE OF INVENTOR 201 	SIGNATURE OF INVENTOR 202 	SIGNATURE OF INVENTOR 203
DATE March 23, 2000	DATE March 23, 2000	DATE
SIGNATURE OF INVENTOR 204	SIGNATURE OF INVENTOR 205	SIGNATURE OF INVENTOR 206
DATE	DATE	DATE